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Nightmares and their relation with trauma

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Abstract

Dreams make connections between traumatic and stressful events, which are guided by emotions. Nightmares are long frightening dreams from which a person usually awakens with scared feelings, and which are common after traumatic and stressful events, but their frequency usually diminishes over time, as the trauma is integrated in the person's memories. However, some nightmares persist, as traumatic nightmares.

The aim of this study was to investigate the relationship between nightmares and traumas, the meaning that subjects give to their nightmares and if they are aware of the trauma/stressful event. The sample consisted of 27 Portuguese subjects who suffer from nightmares and are over 18 years old. The study was divided into three stages: first, a battery of tests was answered, namely a Self Administered Questionnaire, the Pittsburgh Sleep Quality Index, the Disturbing Dream and Nightmare Severity Index, the Trauma Related Nightmare Survey, the Dissociation Experiences Scale and the Impact of Event Scale-Revised. Next, the Structured Clinical Interview for DSM-IV Axis I Disorders – PTSD Module was applied and, according to symptoms severity, subjects were divided into three groups: *Chronic* PTSD Symptoms, *Mild/Moderate* PTSD Symptoms and No PTSD Symptoms. The last step was the administration of a structured interview to explore the nightmares and trauma/stressors content more deeply. To analyse the nightmares' content the Moser Method was used as reference.

Results showed that nightmares and traumatic events distress are most severe for *Chronic* PTSD Symptoms group, followed by the *Mild/Moderate* PTSD Symptoms and No PTSD Symptoms groups. Also, only subjects from the No PTSD Symptoms and *Mild/Moderate* PTSD Symptoms groups were able to give meaning to their nightmares and to find some relation between their nightmares and traumas; however, they weren't fully conscious about their traumatic life events. When analysing the nightmares' content, the results indicated two groups, "clinical concern" and "no clinical concern", corresponding to the subjective distress results of the IES-R. The "clinical concern" group showed a dominance of the security principle; as for the "no clinical concern" group, the security principle was present, but attempts to find resolution strategies were visible. It is important to highlight that several subjects, especially from the Mild/Moderate group and No PTSD Symptoms group, reported a decrease or cease of the nightmares.

Keywords: Nightmares, Traumatic Nightmares, Traumatic/Stressful events, Dissociation, Narratives.

Pesadelos e a sua relação com o trauma

Resumo

Os sonhos produzem ligações entre eventos traumáticos e stressantes, sendo estas guiadas pelas emoções. Os pesadelos são sonhos longos e assustadores, em que a pessoa costuma acordar com sentimentos de medo. Estes são comuns após eventos traumáticos e stressantes, mas a sua frequência geralmente diminui ao longo do tempo, à medida que o trauma é integrado na memória da pessoa. No entanto, alguns pesadelos persistem, nomeadamente aqueles que vêm a constituir os designados pesadelos traumáticos.

O objetivo deste estudo foi investigar a relação entre pesadelos e traumas, o significado que os sujeitos dão aos seus pesadelos e se estes estão conscientes do trauma / evento stressante. A amostra inclui 27 indivíduos portugueses que sofrem de pesadelos e com mais de 18 anos de idade. O estudo foi dividido em três etapas: na primeira, foi aplicada uma bateria de testes incluindo um questionário auto-administrado, o Pittsburgh Sleep Quality Index, o Disturbing Dream and Nightmare Severity Index, o Trauma Related Nightmare Survey, a Dissociation Experiences Scale e a Impact of Event Scale-Revised. Numa segunda etapa os sujeitos foram avaliados através da entrevista clínica estruturada para o DSM-IV Transtornos do Eixo I (módulo PTSD) e, de acordo com a severidade dos sintomas, foram divididos em três grupos: *Diagnóstico PTSD*, Sintomas PTSD *Leve/moderados* e com Ausência PTSD. O terceiro passo inclui a avaliação por entrevista estruturada de todos os sujeitos com o objetivo de explorar em profundidade o conteúdo dos pesadelos e os eventos traumáticos/stressores. Para analisar o conteúdo dos pesadelos foi utilizado como referência o Método Moser.

Os resultados mostram uma maior perturbação do grupo *Sintomas crónicos de PTSD* em relação aos pesadelos e eventos de vida traumáticos, seguido pelo grupo Sintomas *leves / moderados* de PTSD e do grupo Ausência de sintomas de PTSD. Além disso, somente os sujeitos dos grupos Ausência de sintomas de PTSD e Sintomas *leve/moderados* de PTSD foram capazes de dar sentido aos seus pesadelos e de encontrar alguma relação entre esses pesadelos e traumas passados; no entanto, não se mostraram totalmente conscientes dos eventos de vida traumáticos. Ao analisar o conteúdo dos pesadelos, os resultados indicaram dois grupos, "preocupação clínica" e "nenhuma preocupação clínica", organizados em função dos resultados para o sofrimento subjectivo da IES-R. O grupo "preocupação clínica" demonstrou uma dominância do princípio da segurança; para o grupo de "nenhuma preocupação clínica", o princípio de segurança estava presente, mas as tentativas para encontrar estratégias de resolução eram visíveis. É importante destacar que vários sujeitos, especialmente dos grupos Sintomas *leve / moderados* PTSD e Ausência de sintomas de PTSD, relataram uma diminuição ou término dos pesadelos.

Palavras-chaves: Pesadelos, Pesadelos Traumáticos, Eventos Traumáticos/Stressantes, Dissociação, Narrativas.

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Introduction

Over time, the history of dreams has been characterized by various investigations with different methodologies, constructs, and theoretical viewpoints such as Psychoanalysis, Psychology, Modern Biology and Neurobiology. In the case of the research here developed, dreams are viewed as a way of connecting recently experienced material and old memories, joining different parts of our lives, where these connections appear to be guided mostly by the emotions or emotional concerns of the dreamer (Hartmann, 1998; Hartmann, Rosen, & Grace, 1998).

Dreams are picture metaphors; they tend to note similarities between different domains. The connections made while dreaming will allow the dreamer to note similarities between two different things and produce picture metaphors (Hartmann, 1998). The material in our dreams is always personally relevant, though the dream is capable of creating scenes that did not actually happen (Hartmann, 1998). Freud (1900) states that there is an underlying meaning in dreams that has become disguised and censored so that, on the surface, the dream appears to be meaningless. Cartwright, Newell, and Mercer (2001) suggested that dreaming patterns occur depending on waking personalities and the defense mechanisms used, supporting the individuality of each person in the ability to form dreams that connect present affects related to disturbed experiences to other images (Agargun, Kara, Özer, Selvi, Kiran, & Kiran, 2003). Also, Hartmann et al. (1998) have shown that dreams make connections between the traumatic event and other material, like old memories and memories of past trauma.

A trauma is a disturbing experience with a profound effect on mental life that can produce long-lasting effects (Hartmann, 1998; Herman, 1992; Everstine & Everstine, 1992). According to the Diagnostic and Statistical Manual of Mental Health, 5th edition (American Psychiatric Association, 2013), severe trauma, which includes being in a life-threatening situation, like a major disaster or serious accident, being physically assaulted or raped, seeing another person killed, dead, or badly hurt, or hearing about something horrible that has happened to someone to whom you are close, can cause or partially cause a different number of conditions. Pshysiological distress following traumatic or stressful events exposure may vary, as many of the subjects exposed may exihibit a phenotype with prominent anhedonic and

dysphoric symptoms, externalizing aggressive symptoms and dissociative symptoms, instead of anxiety or fear based symptoms (American Psychiatric Association, 2013). Comprising these conditions, a new category was included in the DSM 5 (American Psychiatric Association, 2013), namely Trauma-and Stressor-Related Disorders, integrating the following disorders: Post-traumatic Stress Disorder (PTSD), which involves nightmares and other intrusions like flashbacks, as well as the avoidance of reminders of the trauma; Attachment Disorder and Disinhibited Social Engagement Disorder, where social neglect is required; Acute Stress Disorder; Dissociative Disorders characterized by lapses, losses of time and disorientation; Anxiety Disorders; Somatization Disorders and sometimes Depressive Disorders (American Psychiatric Association, 2013).

A traumatic event is not restricted to a person's past in the same way that other life events may be catalogued in the brain. Instead, it intrudes upon visual, auditory and somatic realities. Trauma victims frequently lose signal anxiety, thus, being unable to modulate their level of arousal, they consequently react to benign and threatening stimuli similarly and become frozen in a hyper arousal state. The lack of verbal narrative will encode these traumatic sensations and images, releasing them as flashbacks and nightmares (Bloom, 1997; Donatone, 2006; Rothschild, 2000).

Saakvitne, Gamble, and Pearlman (2000) have suggested that a traumatic event creates psychological trauma when it overwhelms emotionally, cognitively and physically the individual's perceived ability to cope, leaving the person fearing death, annihilation, mutilation or psychosis. The circumstances of the event commonly include abuse of power, betrayal of trust, entrapment, helplessness, pain, loss, or confusion.

A trauma is an external event that may be the most unexpected and disturbing type of event that can happen for one person and less so for another depending on personality structure and past experiences. There may be events which are considered stressful and emotionally upsetting but that are not so disrupting of the mind, being located somewhere between trauma and ordinary life (Hartmann, 1998; Hartmann et al., 1998). Traumatic memories are intrusive and form rigid areas that are dominated by non-integrated free-floating affects, which disrupt the normal process of making and developing connections, disturbing the production of ordinary memories

and categories. It is as if this traumatic memory were disconnected from the rest of life (Lessing, 1975; Hartmann, 1998; Hau, Jovic, & Rosenbaum, n.d.; Punamäki, Ali, Ismahil, & Nuutinen, 2005).

After a severe trauma, the dominant emotions of the subject are clear. Hartmann (1998) suggests that dreams contextualize the dominant emotion of the dreamer – "contextualizing image" or "contextualizing emotion" (finding a picture context for the dominant emotion). "Ordinary dreams" may be confusing because there is not a dominant emotional concern that clearly guides the formation of the dream. But after an acute trauma, even though the dream images do not come from the actual sensory input experience, past experiences and day residues are swept up by the dominant emotions of terror, fear, or vulnerability to form the picture of the dream (Hartmann, 1998; Pagel, 2000).

It is argued that what occurs in dreams after trauma is quite similar to what occurs in effective psychotherapy following trauma. Hartmann (1998) compares dreaming to therapy, given that dreaming is the making of connections in a safe place - REM sleep, as it happens in psychotherapy – in a therapeutic setting. Dreaming appears to have a quasi-therapeutic adaptive role, suggesting that the making of connections and contextualizing has firstly a restorative function, spreading excitation, and secondly producing changes in the memory network that are adaptive for the future and allow an interpersonal integration of the event (Hartmann, 1998; Pagel, 2000; Varvin, Fischmann, Jovic, Rosenbaum, & Hau, 2012).

Emotions that accompany physiological changes in REM sleep have been reported as either being aggressive or negative (D'Amato, 2010). Sleep disturbances and disturbed dreams are among the hallmarks of the long-term effects of traumatic events. On the basis of their research, Agargun et al. (2003) noted that subjects with childhood traumatic histories recalled fewer dreams than without childhood traumatic history, suggesting that this decrease will minimize the probability of anxiety dreams and nightmares, appearing to indicate a successful adjustment to the traumatic events, in other words, an effective coping mechanism in trauma victims.

The dream after trauma can be looked at in a nonpathological way, where the trauma appears to be resolving itself gradually (Hartmann, 1998, Varvin et al., 2012). In PTSD, although the dreams are repetitive, it is not

usually a repetition of the trauma exactly as it occurred, but involves at least one important change that reports to the emotion in the dreamer's mind. Dreams appear to make connections between the trauma and other parts of the dreamer's life, involving not the detailed physical events of the trauma but the emotions experienced (Hartmann, 1998).

Dreams after trauma or stress can be seen as a kind of "continuity" (Hartmann, 1998). When trauma is dreamt, it gradually becomes part of our network, thus dreaming has an adaptive function and nightmares commonly follow trauma (Agargun et al., 2003). As a trauma resolves itself, more "usual" dream material is gradually introduced along with the direct or metaphorical representation of the trauma. Usually, within some time (weeks or months), dreams return to their normal pattern (Hartmann, 1998).

Previous research has acknowledged a strong relationship between childhood trauma and the development of dissociative symptomatology, which is used as a defense mechanism (Agargun et al., 2003).

Dissociation can be described as the failure to integrate information and self-attributions resulting in alterations of consciousness characterized by a sense of detachment from the self and/or the environment (Chu et al., 2011). It is considered both as a continuum of behaviour and as an extreme deviation from normality, where dissociative experiences can range along a continuum of severity (Carlson, Yates, & Sroufe, 2009; Putnam, 1991).

According to the DSM 5 (American Psychiatric Association, 2013), dissociative disorders are characterized by a disruption or discontinuity in the normal integration of consciousness, memory, identity, emotion, perception, body representation, motor control and behaviour, and frequently follow a trauma. Dissociative symptoms are experienced as spontaneous intrusions into awareness and behaviour, with accompanying losses of continuity in subjective experience - fragmentation of identity, depersonalization and derealisation (positive dissociative symptoms), and as the inability to access information or to control mental functions that are normally available for access or control - amnesia (negative dissociative symptoms).

Due to the close relationship between dissociation, memory, and trauma, researchers have been investigating the brain structure and neurochemical systems that mediate functions. They detected several

substances which bring out dissociative symptoms in patients with PTSD or panic disorder, but not in normal controls (Krystal, Bremner, Southwick, & Charney, 1998). Other neuroanatomic similarities have been considered between dissociative/traumatic conditions and nightmares (Agargun et al., 2003; Bremmer, Krystal, Charney, & Southwick, 1996). Dissociation acts as a coping strategy for traumatic events, where nightmares are one of its adaptive coping strategies in trauma (Agargun et al., 2003). Its main predictors are family loss in childhood, intrafamilial and extrafamilial abuse (*idem*).

Dreams may be thought of as a particular type of dissociative phenomena, which react with and monitor the dreamer's internal and external conditions (Gabel, 1989). It is common in victims of trauma to exhibit sleep disturbances, and avoidance of stimuli associated with the traumatizing event, hypervigilence and nightmares (Langston, 2007).

Sleep disturbances, including nightmares, have been shown to be related to the level of distress experienced by the trauma victim. In fact, nightmares have been referred to as "the second most common post-traumatic sleep disturbance" (Germain, Buysse, Shear, Fayyad, & Austin, 2004; Krakow et al., 2004; Langston, 2007).

Nightmares are described as vivid dreams that usually last 4 to 15 minutes and end when the person awakes due to the rapid return of full alertness, sensing fear and anxiety, and having a vivid recall of the dream, which normally leads to sleep disruption and difficulty returning to sleep (Abdel-Khalek, 2010). Nightmares usually occur in the second half of the Rapid Eye Movement (REM) sleep and rarely involve motor and behavioral activity due to the loss of muscle tone that occurs during REM sleep (but phasic muscle twitches may be increased) (Langston, 2007; Manson & Pack, 2007; Mindell & Dahl, 1998).

Night terrors, on the other hand, are considered an arousal disorder instead of a sleep disorder (American Psychiatric Association, 2013). They are defined as sudden arousals from a slow wave sleep, accompanied by intense fear. It typically occurs during the first third of the night, during non-REM sleep and it exhibits screaming followed by the person sitting up in bed (Schredl, 2001; American Psychiatric Association, 2013).

Despite the similarities between bad dreams and nightmares, it is suggested that bad dreams involve similar processes to nightmares but, regardless of not awaking a person from sleep, they differ in how effectively they regulate the shifting of the affect levels (American Psychiatric Association, 2013; Levin & Nielsen, 2009). Nightmares are considered a category of dreams characterized by emotion (Hartmann, 1998), where fear and anxiety appear to be the most common emotions reported in dreams (American Psychiatric Association, 2013; Kramer, 1970; Nielson, Deslauries & Baylor, 1991; Nielson, Leberge, Paquet, Tremblay, Vitaro, & Montplaisir, 2000)

The common model in the etiology of nightmares entails an interaction between disposition (genetic factors, personality, trait anxiety and acute stressors) and trauma (kidnapping, war experiences, natural and other disasters, severe burns) (Schredl, Fricke-Oerkermann, Wiater, & Lehmkuhl, 2009). Nightmares may be due to genetic, organic or psychological factors. They are considered to be a part of the natural development of a child, appearing to be one of the most common problems in sleep during childhood (Mindell, 1993; Langston, 2007). Psychological stress often accompanies the occurrence of nightmares. For instance, typical life events that are stressful in nature (school transition, parents' divorce, …) can create significant enough anxiety to cause nightmares (Carlson & Cordova, 1999; Langston, 2007).

Nightmares are common in all ages (from 3 to 6 years they are especially frequent), sexes (during childhood, both sexes are equally affected, but in adulthood, women appear to be significantly more affected) and cultures (Abdel-Khalek, 2010; Ames, 1964; MacFarlane, Allen, & Honzik, 1954; Manson & Pack, 2007). But their prevalence is believed to be strongly influenced by age, demonstrating high rates of nightmares during childhood - 60% to 80% of adults report having had nightmares in childhood (Engelhart & Hale, 1990; Harris, 1948) - and decreasing with age (Pagel, 2000). This decrease is linked to the gradual decline in REM sleep that occurs in adolescence (decline of 25% of total sleep by adulthood) (Carlson & Cordova, 1999; Dahl, 1992; Langston, 2007).

In detailed interviews with nightmare sufferers who reported dreams that began in their childhoods, Hartmann (1984, 1989, 1991a, 1998)

concluded that the majority did not have a single acute trauma in their childhoods; rather they had thin boundaries. Thin boundaries refer to the absence of separation between areas and processes in the mind and the lack of defences. They appear to be repeatedly contextualizing fears and vulnerabilities that they had experienced in childhood, and these emotions are triggered by situations in adult life that somehow remind them of their childhood fears and vulnerabilities (Cartwright & Romanek, 1978; Domhoff, 1996; Hartmann, 1998; Pagel, 2000; Robbins & Houshi, 1983).

Reported rates of nightmare occurrence in university population revealed higher rates of nightmares in males than females. Nightmare victims rated their sleep quality as poorer, greater dream recall, more aggression in their dreams and were more affected by their dreams and nightmares than the control group (Abdel-Khalek, 2010; Agargun et al., 2003; Levin, 1994).

Broughton (1999) acknowledged that approximately 40-50% of adults report at least occasional nightmares. These are currently a problem for approximately 5% of the population (Abdel-Khalek, 2010; Vgontzas & Kales, 1999) and are frequently associated with anxiety, mood disorders, suicide and life stressors (Grandi, Fabbri, Panattoni, Gonnella, & Marks, 2006; Ohayon, Morselli, & Guilleminault, 1997; Tanskanen, Tuomilheto, Viinamaki, Vartiainen, Lehtonen, & Puska, 2001).

Frequent nightmares are usually an expression of a disturbance in the sleep structure and may have serious consequences for health. They are related to somatic and mental symptoms and bad quality of life. It is known that stressful periods and traumatic events as well as medication (beta blockers and antidepressants) intensify the occurrence of nightmares (Abdel-Khalek, 2010).

According to the DMS 5 (American Psychiatric Association, 2013), the criteria of a nightmare disorder are: “repeated occurrences of extended, extremely dysphoric, and well-remembered dreams that usually involve efforts to avoid threats to survival, security, or physical integrity and that generally occur during the second half of the major sleep episode” (Criterion A); “on awakening from the dysphoric dreams, the individual rapidly becomes oriented and alert (in contrast to the confusion and disorientation seen in sleep terror and some forms of epilepsy)” (Criterion B); “the sleep

disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning" (Criterion C); "the nightmare symptoms are not attributable to the physiological effects of a substance (e.g. drug abuse, medication)" (Criterion D); "Coexisting mental and medical disorders do not adequately explain the predominant complaint of dysphoric dreams" (Criterion E). This disorder reveals higher rates in women than men.

Furthermore, the International Classification of Sleep Disorders (ICDS-2, 2005) adds: "Criterion D: Associated features include at least one of the following: 1. return to sleep after the episode is delayed and not rapid; 2. the episode occurs during the latter half of the habitual sleep period"; E. Polysomnographic monitoring demonstrates the following: 1. an abrupt awakening from at least 10 minutes of REM sleep; 2. mild tachycardia and tachypnea during the episode; 3. absence of epileptic activity in association with the disorder"; F. "Other sleep disorders, such as sleep terrors and sleepwalking, can occur.

Nightmares may emerge as an independent psychopathological problem, as contemplated by the nosologic system (American Psychiatric Association, 2013). However, nightmares sometimes appear linked to other clinical conditions such as mood disorders, anxiety disorders, psychotic disorders, adaptation disorders and personality disorders. Nightmares that produce high distress may function as an indicator of pathology risk and severity (Langston, 2007; Martinez, Miró, & Arriaza, 2005). Schredl et al. (2003) implied that the distress associated with nightmares, rather than the frequency of the nightmares, is the best predictor of psychopathology.

Several studies relate nightmares to psychopathology. A high rate of psychiatric disorders was found in an adult insomnia population with frequent nightmares (Abdel-Khalek, 2010; Ohayon et al. 1997). Moreover, suffering from nightmares on a weekly basis is strongly associated with depressed mood and borderline personality disorder (Abdel-Khalek, 2010; Miró & Martinez, 2005; Semiz, Basogly, Ebrinc, & Cetin, 2007), and the abrupt appearance of frequent vivid nightmares may precede a psychotic episode (Hartmann, 1998; Hobson, 2004; Martinez et al., 2005).

Depressed patients with frequent nightmares are more prone to suicidal tendencies than patients that do not experience nightmares, and the

level of anxiety in patients with major depression can be used to distinguish cases with melancholic features and without (Agargun, Çilli, Kara, Tarhan, Kincir, & Öz, 1998; Bilici et al., 2002; Langston, 2007; Martinez et al., 2005). Nightmares can also be related to personality disorders, like schizotipy, alexithymia, drug and alcohol dependence (Agargun et al., 2003).

PTSD is probably the clinical condition which is most associated with nightmares (60% of the people who suffer from PTSD experience nightmares). One of the diagnostic criteria from PTSD in the DSM 5 (American Psychiatric Association, 2013) is the repetitive dreams that involve the re-experience of the traumatic experience which the person suffered. Nightmares that form a part of PTSD display different characteristics compared to ordinary nightmares: people with trauma-related nightmares wake up more frequently than people with non-trauma-related nightmares, post trauma nightmares can occur during all stages of sleep while general nightmares tend to occur in the second half of the REM sleep and subjects who suffer from trauma-related nightmares are able to state their nightmares exactly or similar to a traumatic life event, suggesting that traumatic memories are different from ordinary memories because the traumatic event is not integrated in life's experiences and history, remaining only a photographic memory of the event (Hartmann, 1998; Heaton, 2004; Kramer & Kinney, 1988; Kolk, 1984; Langston, 2007; Martinez, 2005; Singareddy & Balon, 2002; Woodward, 2000).

Davis, Byrd, Rhudy, and Wright (2007) found, when examining the content of post trauma nightmares, that 20% of the patients reported replications of their trauma experience and 50% reported nightmares similar in content to the traumatic event. Replication nightmares were found to be correlated with a decrease in sleep quantity, increased fear of falling asleep and increased frequency of nightmares.

In PTSD, the patient is stuck with repetitive post-traumatic nightmares, which are described as picturing the trauma as it occurred. When the situation becomes chronic, the process of making connections becomes stuck, in other words, dreams are no longer making any new connections with other material of life (Hartmann, 1998; Terr, 1991). Trying to find a solution, this process is activated in the same form over and over again, and is usually related to a failure of affect regulation, causing fearful

awakening (Varvin et al., 2012). It has been noted that patients with PTSD and chronic nightmares resist psychotherapy, as they find it too painful to become involved. These patients found a different way of existing, walling off the trauma, avoiding anything that might remind them of it and avoiding emotional relationships that might bring up painful memories. Thus the walling of and connection avoidance will develop "thick boundaries" (Hartmann, 1996b; Hartmann, 1998).

Usually all trauma victims experience post trauma nightmares following the traumatic event. For the majority, these nightmares are experienced for a brief period of time before changing and being dissipated (American Psychiatric Association, 2013; Hartmann, 1996). Yet, for the minority of the trauma victims, the nightmares continue (Forbes, Phelps, McHugh, Debenham, Hopwood, & Creamer, 2003; Krakow, Tandberg, Scriggins, Barey, & 1995; Schreuder, Van Egmond, Kleijn, & Visser, 1998; Langston, 2007).

According to Krakow and Zadra (2006), nightmares consist of two components: a conditioned stimuli that is unpleasant and triggers the conditioned response of waking up to avoid the unpleasant emotions associated with the dream; and a damaged imagery system, which is filled with unpleasant images throughout the day and night (sleep) in those suffering from chronic nightmares.

The consequence for a person suffering from nightmares is more related to subjective distress than impairment within social and occupational functioning, due to the awakenings that are provoked by the distressing dreams and the sensation of fear or anxiety (Martinez et al., 2005; Langston, 2007). This can lead to the fear of sleeping due to the lack of rest and nightmare anticipation, resulting in excessive somnolence, fatigue, difficulties in concentrating, irritability, feeling of helplessness, thus resulting in diurnal malfunctioning (Martinez et al., 2005; Langston, 2007). Semiz, Basoglu, Ebrinc, and Cetin (2008) found that higher dream anxiety was significantly correlated with higher rates of childhood trauma history and higher levels of dissociation.

The experience of nightmares following trauma suggests that people who continue to relive their traumatic experience by means of their dreams have yet to consolidate those events into their current schemas (Horowitz,

1986). Hartmann (1996) argued that the occurrence of replicate nightmares immediately after the traumatic experience is usual and occurs in order for the new information of the trauma experience to fuse with existing information and memories. Although nightmares start out as replicates of the traumatic event, they generally transform over time, as the trauma is integrated. However, if the traumatic memory is not assimilated, PTSD nightmares occur (Langston, 2007).

Aim

The aim of this study is to investigate the relationship between nightmares and traumas, the meaning that subjects give to their nightmares and if they are aware of the trauma/stressful event.

To analyse the differences of the sociodemographic characteristics, sleep quality, nightmare complaints, characteristics of nightmares, dissociation symptomalogy and subjective suffering derived from a specific event between groups, elaborated using the Structure Clinical Interview for DSM-IV Axis I Disorders - PTSD Module classification.

To study the nightmares content, the Moser Method was used as reference.

Method

Subjects

A total of 27 subjects volunteered to participate in this study. They were recruited through a social network announcement. The requirements were to be over 18 years old and to have nightmares (dreams with negative content, that usually involve efforts to avoid threats to survival, security, or physical integrity and cause the person to wake up). The group was composed of **22 females** and **5 males** and the mean age was **23,11±2,33 years**. All subjects gave written informed consent prior to their participation in the study.

Initially 28 subjects were part of the study, but subject number 23 quit in the second stage of the study due to hers inability to talk about traumatic memories.

All subjects claimed to be single, most were students and belong to

nuclear families (Table 1).

Several subjects stated they have a family medical history and a majority reported a stressful medical history, that is having experienced health problems/medical procedures that were very distressful, mostly during adolescence. Some subjects were submitted to psychotherapy and medicated with psychoactive drugs/sleeping medication (Table 2).

Concerning drug use, some subjects admitted consuming psychoactive drugs, being cannabis the most used. There was a policonsumer subject (methanphetamines), but it was medically prescribed for a chronic condition. The majority of subjects consume alcohol, mostly beer and wine, mainly on a monthly basis (Table 2).

Subsequently, using the Structured Clinical Interview for DSM-IV Axis I Disorders – PTSD Module, subjects were divided into three groups according to the severity of the PTSD symptoms. The *Chronic* PTSD Symptoms group, with a mean age of 24,17±3,55 years and which includes subjects who met all critera for PTSD diagnosis; the *Mild/Moderate* PTSD Symptoms group, with a mean age of 22,78±1,72 years and which contains subjects that did not meet all criteria but the disturbance caused by the symptoms is clinically significant and the No PTSD Symptoms group, with a mean age of 22,75±2,14 years and which includes subjects which reported no clinically significant disturbance. These results will be discusses later on.

Table 1.
Sociodemographic Characteristics vs. SCID-I PTSD Module Groups

		SCID-I PTSD Module							
		Chronic PTSD Symptoms		*Mild/Moderate* PTSD Symptoms		No PTSD Symptoms		Total	
		n	%	n	%	n	%	N	%
Gender	Female	4	66,7	8	88,9	10	83,3	22	81,5
	Male	2	33,3	1	11,1	2	16,7	5	18,5
	Total	6	100	9	100	12	100	27	100
Marital Status	Single	6	100	9	100	12	100	27	100
	Total	6	100	9	100	12	100	27	100
Professional Situation	Student	4	66,7	6	66,7	10	83,3	20	74,1
	Employed	2	33,3	2	22,2	0	0	4	14,8
	Unemployed	0	0	0	0	1	8,3	1	3,7
	Student worker	0	0	1	11,1	1	8,3	2	7,4
	Total	6	100	9	100	12	100	27	100
Household	Nuclear Family	1	16,7	7	77,8	6	50	14	51,9
	Monoparental Family	2	33,3	1	11,1	2	16,7	5	18,5
	Extended Family	1	16,7	0	0	2	7,4	3	11,1
	Restructured Family	2	33,3	1	11,1	0	0	3	11,1

	Unipersonal	0	0	0	0	1	3,7	1	3,7
	Couples without children	0	0	0	0	1	3,7	1	3,7
	Total	6	100	9	100	12	100	27	100

Table 2
Clinical Characteristics vs.SCID-I PTSD Module Groups

		SCID-I PTSD Module							
		Chronic PTSD Symptoms (n=6)		*Mild/Moderate* PTSD Symptoms (n=9)		No PTSD Symptoms (n=12)		Total (N=27)	
		n	%	n	%	n	%	N	%
Family Medical History	Yes	5	83,3	6	66,7	5	41,7	16	59,3
	No	1	16,7	3	33,3	7	58,3	11	40,7
Stressful Medical History	Yes	3	50	6	66,7	11	91,7	20	74,1
	No	3	50	3	33,3	1	8.3	7	25,9
Time of Diagnosis	Childhood	0	0	0	0	1	8,3	1	3,7
	Adolescence	1	16,7	1	11,1	4	33,3	6	22,2
	Adulthood	0	0	0	0	1	8,3	1	3,7
	Childhood and adolescence	1	16,7	0	0	2	16,7	3	11,1
	Childhood and adulthood	0	0	3	33,3	1	8,3	4	14,8
	Adolescence and adulthood	1	16,7	1	11,1	1	8,3	3	11,1
	Childhood, adolescence and adulthood	0	0	1	11,1	1	8,3	2	7,4
	No diagnose	3	50	3	33,3	1	8,3	7	25,9
Psychotherapy	Yes	2	33,3	1	11,1	2	16,7	5	18,5
	No	4	66,7	8	88,9	10	83,3	22	81,5
Psychoactive Medication	Yes	2	33,3	1	11,1	1	8,3	4	14,8
	No	4	66,7	8	88,9	11	91,7	23	85,2
Drug Use	Yes	1	16,7	3	33,3	3	25	7	25,9
	No	5	83,3	6	66,7	9	75	20	74,1
Type of Psychoactive Drug	Doesn't consume	5	83,3	6	66,7	9	75	20	74,1
	Cannabis	1	16,7	3	33,3	2	16,7	6	22,2
	Policonsumer	0	0	0	0	1	8,3	1	3,7
Frequency Drug Use	Never	5	83,3	6	66,7	9	75	20	74,1
	Annually	0	0	1	11,1	2	16,7	3	11,1
	Weekly	0	0	1	11,1	0	0	1	3,7
	Daily	1	16,7	1	11,1	1	8,3	3	11,1
Alcohol Consumption	Yes	6	100	5	55,6	10	83,3	21	77,8
	No	0	0	4	44,4	2	16,7	6	22,2
	Total	6	100	9	100	12	100	27	100
Type of Alcoholic beverage	Doesn't consume	0	0	4	44,4	2	16,7	6	22,2
	Beer and wine	2	33,3	0	0	3	25	5	18,5
	Spirits	0	0	2	22,2	1	8,3	3	11,1
	Policonsumer	4	66,7	3	33,3	6	50	13	48,1
Frequency of Alcohol Consumption	Never	0	0	4	44,4	2	16,7	6	22,2
	Monthly	1	16,7	4	44,4	6	50	11	40,7
	Weekly	4	66,7	1	11,1	4	33,3	9	33,3
	Daily	1	16,7	0	0	0	0	1	3,7
Sleep Medication	Yes	0	0	1	11,1	4	33,3	5	18,5
	No	6	100	8	88,9	8	66,7	22	81,5

Instruments

The **Self administered Questionnaire (SAQ)** was designed to collect socio demographic characteristics and personal information, such as gender, age, education, occupation, education and occupation of parents, household, place of residence, familiar and personal medical history, psychological diagnosis, use of medicines, drugs, alcohol and sleeping pills.

The Pittsburgh Sleep Quality Index (PSQI; Buysse, Reynolds, Monk, Berman, & Kupfer, 1989; Translation and Adaption: Marques, Gomes, Meiavia, Salqueiro, Ribeiro, & Dischler, 2013) was developed to provide a valid, reliable and standardized measure of sleep quality, to discriminate "good" from "bad" sleepers, to provide an index that is easy to use and interpret and to provide a clinically useful assessment of several sleep disturbances that might affect sleep quality. It consists of 19 self-rated questions grouped in seven component scores on a 0-3 scale: sleep duration, sleep disturbance, sleep latency, day dysfunction due to sleep, sleep efficiency, sleep quality and use of sleeping medication. The seven component scores are aggregated to yield a global PSQI score, ranging from 0 to 21, where a higher score indicates worse sleep quality. The Portuguese version presents a satisfatory internal consistency, with a Cronbach Alpha of .65 considering the PSQI components and .74 for the PSQI items (Marques, Gomes, et al., 2013).

The **Disturbing Dream and Nightmare Severity Index** (DDNSI; Krakow B., Schrader, R., Tandberg, D., Hollifield, M., Koss, M.P., Yau, C.L., Cheng, D.T. 2002; Krakow B., Melendrez D.C., Johnston L.G., Clark, J.O., Santana, E.M., Warner, T.D., Hollifield, M.A., Schrader, R., Sisley, B.N., Lee, S.A.2002) is an expanded version of the validated Nightmare Frequency Questionnaire. The scale attempts to determine the presence of clinically significant nightmare complaints. It includes questions on nights per week with nightmares, awakenings due to bad dreams, the severity of nightmare problems and intensity of actual nightmares. Its score ranges from 0 to 37 and a total score of 10 or greater predict the presence of a clinically significant nightmare complaint. In the current study the original version was translated into a Portuguese version.

The **Trauma Related Nightmare Survey** (TRNS; Davis, Wright & Borntrager, 2001) measure characteristics of chronic nightmares, such as

frequency, severity and duration of nightmares, as well as cognitions, emotions and behaviours related to nightmares. It is a likert-type scale with open-ended questions and it is considered a reliable and valid scale (Davis et al., 2007). In this study it was translated into a Portuguese version.

The **Dissociation Experiences Scale** (DES-II; Carlson & Putman, 1993; Translation and Adaptation: Matos, Pinto-Gouveia, cit in. Castilho, Pinto Gouveia et al., 2010) is a brief, self-report measure of the frequency of dissociative experiences and it was developed to provide a reliable and valid way to quantify dissociative experiences. It consists of 28 items which examine three factors: absorption (e.g. becoming so absorbed when watching television or a movie that you are unaware of what is happening around you), derealization/depersonalization (e.g. being in a familiar place and finding it strange and unfamiliar/ feeling that your body does not belong to you) and amnesia for dissociative states (e.g. no memory for important past events in your life). The DES-II was created to address the need for a simple clinical screening instrument to detect dissociative disorders and the need for a measure to quantify dissociation in research studies. Subjects are asked to indicate, on a scale of 0% to 100%, what percentage of time they experience dissociative symptoms (Fiszman et al., 2004) (Marinus, Van Ijzendoorn, & Schuengen, 1996) (Waller, Putnam, & Carlson, 1996). The Portuguese version presents a high internal consistency, with a Cronbach Alpha of .95 (Castilho, Pinto-Gouveia, & Bento, 2010).

The **Impact of Event Scale-Revised** (IES-R; Impact of Event Scale-Revised, Weiss & Marmar, 1997; Translation and adaptation: Matos, Pinto-Gouveia, & Martins, 2011). Based on the original version, the Portuguese version of the IES-R is a self-report, likert-type instrument, that assesses subjective suffering derived from a specific event. It consists of 22 items and includes three subscales: hyperarousal, intrusion and avoidance, measures of the three primordial characteristics of the symptomatology associated with a particular traumatic experience. It can be used in both healthy and frail adults exposed to any specific traumatic event and it can be used for monitoring progress. The Portuguese version presents a high internal consistency of $\alpha = .96$ (Matos, Pinto-Gouveia, & Martins, 2011).

The Structure Clinical Interview for DSM-IV Axis I Disorders (SCID; Spitzer, Williams & Gibbon, 1990) is a semi structured interview

that assesses the presence of symptoms from the Axis I and provides a DSM-IV Axis I diagnosis. In this study, the Structure Clinical Interview for DSM-IV Axis I Disorders - PTSD Module (SCID-I; First, Spitzer, Gibbon, & Williams, 1996) was used, as it rapidly became the most used procedure in research to diagnose PTSD, namely leading PTSD studies (Maia & Fernandes, 2003). It is an effective measure to assess the presence of symptoms or their presence in the past.

The SCID was originally designed to meet both the needs of researchers and clinicians, but due to problems encountered by both groups, the SCID-I for DSM-IV was split into two versions: research and clinician. In this investigation, the research version was used, which, besides containing more disorders, subtypes, severity, course specifiers and provisions for coding the specific details of past mood episodes than the clinician's version, includes most of the information that is diagnostically useful to researchers (First, et al., 2002).

In this investigation, the Structure Clinical Interview for DSM-IV Axis I Disorders - PTSD Module is used as a screening instrument, and therefore, subjects will be evaluated according to the severity of PTSD symptoms, and not PTSD diagnosis.

Structured Interview. The aim of this interview is to investigate traumatic/stressful events that might have influenced the subject's nightmare, the subject's awareness of the traumatic aspects of the event, to analyse the content of nightmares and to examine their meaning to the subject. It consists of 12 items and requires the subject to answer questions concerning: description, content and frequency of the nightmares; distress caused by the nightmares and conditions that affect their frequency; the meaning given to the nightmares; traumatic/stressful events; assessment (very good, good, bad) of childhood, familiar, professional and personal life; nightmares during childhood and traumatic/stressful events that might have influenced the content of the nightmares.

Procedures

This study was divided into three stages. First, subjects were required to answer a battery of tests, namely a Self Administered Questionnaire, the Pittsburgh Sleep Quality Index, the Disturbing Dream and Nightmare

Severity Index, the Trauma Related Nightmare Survey, the Dissociation Experiences Scale and the Impact of Event Scale-Revised. The Portuguese translation of the DDNSI and TRNS followed the standards required, in which the translation-retroversion method was made by 4 experts as well as a pre-test. Next, the Structured Clinical Interview for DSM-IV Axis I Disorders – PTSD Module was used and, according to the severity of symptoms, subjects were divide into three groups: *Chronic* PTSD Symptoms (all criteria were met and caused significance disturbance), *Mild/Moderate* PTSD Symptoms (did not meet all criteria but the disturbance caused by the symptoms was clinically significant) and No PTSD Symptoms (no clinically significant disturbance). The first group consists of 6 subjects, namely subjects numbers 1, 2, 6, 17, 18 and 21; the second group is made up of 9 subjects, that is subjects numbers 5, 7, 11, 13, 14, 19, 20 and 24 and the third group consists of 12 subjects, subjects numbers 3, 4, 8, 10, 12, 15, 16, 22, 25, 26, 27 and 28.

In the third step, a structured interview was administrated to explore the nightmares and trauma/stressors content more deeply. To analyse the content of the nightmares, the Moser Method (Fischmann, Russ, Baerh, Stirn & Leuziger-Bohleber, 2012; Hau, et al., n.d.; Varvin et al. 2012) was used together with the IES-R classification.

Comparisons between sociodemografic characteristics, the DDNSI and the TRNS with the three groups were made using the χ^2 test - Fisher's exact test. A nonparametric test was used, namely Kruskal Wallis test to compare the three groups with the PSQI, DES-II and IES-R scales scores.

Results and Discussion

Most subjects are female, college students and live in nuclear families. Several studies have found that nightmare prevalence is particularly high in girls (Agargun et al., 2003; American Psychiatric Association, 2013; Hublin, Kaprio, Partinen, & Koshenvuo, 1998; Schredl & Pallmer, 1998; Simmonds & Parraga, 1982). However, Hartmann (1984) suggested that, even though in most studies the subjects with nightmares are of the female sex, it may be related to the cultural fact that adult women are more willing to admit having nightmares than men, as it may be seen as embarrassing and childish and, therefore are more available to participate in these

investigations. Nightmares are found equally in boys and girls and probably also in men and women, concluding that sex is not determinant of nightmare frequency (Hartmann, 1984). When analysing of the descriptive statistics for each group, certain factors can be highlighted, namely: the type of household, a monoparental (33.3%) and restructured (33.3) family type for the *Chronic* PTSD Symptoms group and a nuclear family type for the *Mild/Moderate* PTSD Symptoms (77.8%) and No PTSD Symptoms (50%) (Table 1).

The existence of a family medical history stood out in the *Chronic* PTSD Symptoms group, followed by the *Mild/Moderate* PTSD Symptoms group and No PTSD Symptoms group. The existence of a stressful medical history was reported in all groups, mainly during adolescence. A study by Hartmann (1984) showed that most nightmare sufferers had found their adolescence hard. Despite few, the *Chronic* PTSD Symptoms group presented a higher number of subjects that attended psychotherapy and were medicated with psychoactive drugs; followed by the *Mild/Moderate* PTSD Symptoms group and the No PTSD Symptoms group. They were medicated with drugs for depression, bipolarity and anxiety. The use of sleeping medication was higher in the No PTSD Symptoms group, followed by the *Mild/Moderate* PTSD Symptoms group. Mental illness is associated in a general way with nightmares (Hartmann, 1984), particularly in young adults and adults (Agargun, Kara et al., 2003). Depression often appears to be associated with an increase of nightmares, mainly during the illness (Agargun et al., 2003; Hartmann, 1984) and recurrent nightmares are characterized by a high comorbidity with mood and anxiety disorders (Agargun et al., 2003, Pagel, 2000). The consumption of psychoactive drugs, mainly cannabis (33.3%), was higher in the *Mild/Moderate* PTSD Symptoms (33.3%) group; the consumption of alcohol was similar for all groups, mainly weekly policonsumption and, although a minority, there was a use of sleep medication for the *Mild/Moderate* PTSD Symptoms and No PTSD Symptoms groups (Table 2).

The results from the Pittsburgh Sleep Quality Index show a worsening of the duration of sleep, sleep disturbance, day dysfunction due to sleepiness and overall sleep quality, where the *Chronic* PTSD Symptoms group demonstrated the worst results, followed by the No PTSD Symptoms group

and the *Mild/Moderate* PTSD Symptoms group. The need of meds was observed for the No PTSD Symptoms group, and bad sleep latency, good sleep efficiency and poor sleep quality was oberseved in all groups (Attach.1; Table 1.1).

In the analysis of the Disturbing Dream and Nightmare Severity Index (DDNSI) for each group it was observed that most subjects from the *Chronic* PTSD Symptoms group have nightmares on a weekly basis, unlike subjects from the other two groups that state having nightmares monthly. The interference of nightmares on the quality of sleep, mental health, physical health, social and recreational activities, school or work performance and relationships is reported by subjects from the *Chronic* PTSD Symptoms group. Concerning the frequency of nightmares that wake up the subject, the intensity of nightmares, their interference on the quality of sleep and on mood, the *Chronic* PTSD Symptoms group scored worst, followed by the *Mild/Moderate* PTSD Symptoms group and the No PTSD Symptoms group, with similar scores. The total score indicates significant nightmare complaints in all groups, most severe in the *Chronic* PTSD Symptoms group, followed by the *Mild/Moderate* PTSD symptoms and the No PTSD Symptoms group (Attach. 1; Table 1.2). This aggravation of "symptoms" observed between groups may be explained by traumatic nightmares which resemble ordinary nightmares. They are usually experienced as a dream and in most cases find resolution and disappear a few weeks later by merging with other dream content and becoming a part of the person's ordinary life (Hartmann, 1984). However, after a traumatic event, the event may be dreamt a few times and then gradually other elements are included, but the traumatic event is still waiting to be integrated into the subject's memories (*idem*). Fairbairn (1952) added that traumas which induce nightmares and other symptoms turn out always to be related to an individual's psychological "makeup", and just those traumatic events that relate to the individual's particular psychological conflicts will have lasting effects.

By comparing the Trauma Related Nightmare Survey (TRNS) results between groups, it was found that more subjects from the *Chronic* PTSD Symptoms group were fearful to go to sleep, unlike subjects from the other two groups. Subjects from the *Chronic* PTSD Symptoms group and No PTSD Symptoms group reported feeling more depressed when they woke

up, than subjects from the *Mild/Moderate* PTSD Symptoms group. This goes in agreement with the study from Davis and Wright (2007), in which subjects with chronic nightmares and the control group had similar scores conserning how depressed they felt upon waking. Regarding how rested the subjects feel when they wake up, subjects from the *Mild/Moderate* PTSD Symptoms group reported feeling more rested. Concerning how disturbing nightmares have been, all groups consider them to be moderately disturbing. Most subjects from the three groups stated that the nightmares did not begin after a traumatic or stressful event and that there is no relationship between the nightmares and a traumatic event. In every group, subjects generally wake up from a nightmare after 3-5 hours of sleep, supporting the view that nightmares are more likely to happen in the second half of the REM sleep (American Psychiatric Association, 2013). The *Mild/Moderate* PTSD Symptoms and No PTSD Symptoms groups indicate a moderate relation of their nightmares to powerlessness and all groups indicate a moderate relation of their nightmares to trust, esteem and intimacy and a big relation to safety. The *Chronic* PTSD Symptoms group indicates having the same nightmare over and over, followed by the *Mild/Moderate* PTSD Symptoms group and No PTSD Symptoms group **(**Attach. 1; Table 1.3**)**. Traumatic dreams are characterized, among other things, by their repetitiveness. Trauma is the result of the loss of internal protection, related to the loss of basic trust and mastery, which is experienced as loss of protection and empathy, which gives meaning to thoughts and actions in other circumstances (Varvin, 2003). The process of symbolization is so distorted that it cannot provide an emotional narrative for thoughts. To regain a humanized state, repetition compulsion comes into play, forcing the traumatized to relive the traumatizing experience repeatedly in the attempt to find symbols (Varvin et al., 2012). Also, the replication of nightmares is correlated with a decrease in sleep quality and with an increase in the nightmares frequency and fear of falling asleep (Davis et al., 2007).

Concerning the statistical analysis, significant differences were found for the *Chronic* PTSD Symptoms group in several of the DDNSI and TRNS components (Table 3). An association between these variables and the *Chronic* PTSD Symptoms group is observed, that is, these variables have a dependent relationship. The variables of the DDNSI present a std. Residual

>1.96, meaning that more observed cases are present then what is expected if the variables were independent, emphasizing a positive dependent relationship between a particular answer choice, e.g. "My disturbing dreams and/or nightmares interfere very much with my physical health" and the *Chronic* PTSD Symptoms group. It can be concluded that there is a statistically significant association between the *Chronic* PTSD Symptoms group and the interference of nightmares in mental and physical health, in social and recreational activities and in relationships, as well as with the fear of going to sleep.

Table 3.
Fisher's Exact Test among DDNSI, TRNS and Chronic PTSD Symptoms group

	Chronic PTSD Symptoms group n=6	
DDSNI	Fisher's Exact Test p-value	Std. Residual
My disturbing dreams and/or nightmares interfere with my mental health	.014*	(very much) =2.9
My disturbing dreams and/or nightmares interfere with my physical health	.008**	(slightly/moderately) =2.7
My disturbing dreams and/or nightmares interfere with social or recreational activities	.009**	(slightly/moderately) =2.0
My disturbing dreams and/or nightmares interfere with my relationships	.009**	(slightly/moderately) =2.3
TRNS		
How fearful are you to go to sleep?	.038*	-

**p< .05: **p<.01; ***p<.001*

Analysing the Dissociative Experiences Scale-II for each group (minimum score=0; maximum score=1), the Absorption factor was present in all groups: *Chronic* PTSD Symptoms (M=0.83; DP=0.408), Mild/Moderate PTSD Symptoms (M=0.78; DP=0.441) and No PTSD Symptoms (M=0.75; DP=0.453) groups, e.g. being preoccupied or distracted by something around you, daydreaming and becoming so involved that it feels real. A high internal consistency of α= .94 was observed. Various

studies have demonstrated a strong association between traumatic events, dissociative symptomalotogy and sleep disturbances (Agargun et al., 2003; Harvey et al., 2003; Koffel & Watson, 2009; Spiegel & Cardena, 1991). In the conceptualization of PTSD, the exposure to a traumatic event leads to both daytime symptoms of dissociation (e.g. flashbacks) and nighttime symptoms (e.g. nightmares) (American Psychiatric Association, 2010). Hartmann (1991) suggests a combination between vivid dreams, nightmares and dissociation (particularly the Imagination/Absorption component) (Koffel & Watson, 2009). Traumatic experiences are known to disrupt both daytime and nightime experiences, and absortion proneness is found to be the main aspect of personality that is related to the overlap between daytime and nightime experiences (Giesbrecht & Merckelbach, 2006; Kuckgoncu, Aktar, Erginbas, Bestepe, Calikusu, Algin & Erkov, 2010).

Kuckgoncu et al. (2010) found an association between sleep disturbances and dissociation. Other studies also found that subjects with nightmares have significantly higher scores in the DES than those without nightmares and that high scores in the DES are highly correlated with reported histories of childhood trauma (Agargun et al., 2003; Chu & Dill, 1990; Saxe, Van der Kolk, & Berkowitz, 1993). Dissociation is a way of coping with traumatic events, nightmares being an adaptive function in the emotional adaptation of the subject to traumatic events (Argagun et al., 2003).

Comparing The Impact of Event Scale – Revised results among the three groups (Table 4) it was observed that most subjects from the *Chronic* PTSD Symptoms group, followed by the *Mild/Moderate* PTSD Symptoms group and for the No PTSD Symptoms group scored in “clinical concern” for the total subjective distress of a particular event chosen. A high internal consistency was indicated, with a Cronbach alpha of .96. The IES-R is used to measure the subjective response to a specific traumatic event in an adult population, analyzing the severity of the PTSD symptomatology. However, this is a limited measure because it is a screening tool with a non-clinical focus, rather than a comprehensive test, and it is best used for recent not remote traumatic events.

Table 4
Impact of Event Scale - Revised vs.SCID-I PTSD Module Groups

		SCID-I PTSD Module							
		Chronic PTSD Symptoms (n=6)		*Mild/Moderate* PTSD Symptoms (n=9)		No PTSD Symptoms (n=12)		Total N=27	
		n	%	n	%	n	%	N	%
Intrusion	No clinical concern	5	83.3	6	66,7	11	91,7	22	81,5
	Clinical concern	1	16.7	3	33,3	1	8,3	5	18,5
Avoidance	No clinical concern	6	100	7	77,8	11	91,7	24	88,9
	Clinical concern	0	0	2	22,2	1	8,3	3	11,1
Hyperarousal	No clinical concern	6	100	8	88,9	12	100	26	96,3
	Clinical concern	0	0	1	11,1	0	0	1	3,7
Total subjective stress	No clinical concern	1	16.7	2	22,2	6	50	9	33,3
	Clinical concern	5	83.3	7	77.8	6	50	18	66.7
	Total	6	100	9	100	12	100	27	100

Analyzing the structured interview, the last step of this study, it was observed that among the nightmare sufferers, nightmares were classified as real, intense and frightening dreams. The themes varied considerably, some involved being chased, natural disasters, abandonment, others animal attacks or robberies, but the most common theme for the *Chronic* PTSD Symptoms group was being trapped and for the *Mild/Moderate* PTSD Symptoms and No PTSD Symptoms groups was the death of relatives or their own (Table 5). Sometimes it was only a threat that would awaken the dreamer in fright, but in other cases, they were actually hurt. Not only did frightening events occur, but some of the nightmare's background scene was also frightening, with the dreamer being surrounded by death, blood, graveyards, among others. Mostly the dreamer felt helpless in the dream and in some cases, the nightmares had an altruistic character. In other words, it was not the dreamer who was in danger but his/her relatives, and the dreamer was trying in vain to help them. The nightmares were mostly recurrent and their frequency was higher for the *Chronic* PTSD Symptoms group, followed by the *Mild/Moderate* PTSD Symptoms and the No PTSD Symptoms groups (Table 7). It is also important to note that most subjects described an overall

decrease in the frequency of nightmares and an improvement in the distress caused by nightmares, especially subjects from the *Mild/Moderate* PTSD Symptoms and No PTSD Symptoms groups, which also stated that they were so used to the nightmare that it does not affect them as it did in the beginning; others figured out a way of dealing with that distress. These nightmares may be referred to as ordinary dreams, where subjects are slowly finding a resolution and the nightmare's content is becoming more and more a part of the person's ordinary dream life, unlike the traumatic nightmares, observed in most of the *Chronic* PTSD Symptoms group, which cannot find the necessary resolution (Hartmann, 1984, 2001).

Table 5.
Nightmare's Topics vs.SCID-I PTSD Module Groups

	SCID-I PTSD Module							
	Chronic PTSD Symptoms (n=6)		*Mild/Moderate* PTSD Symptoms (n=9)		No PTSD Symptoms (n=12)		Total (N=27)	
	n	%	n	%	n	%	N	%
Entrapment	2	33,3	1	11,1	0	0	3	11,1
Animal Attack	1	16,7	0	0	1	8,3	2	7,4
Death of relatives or one's own	1	16,7	2	22,2	6	49,8	9	33,3
Natural Disaster	1	16,7	0	0	1	8,3	2	7,4
Robbery	0	0	0	0	1	8,3	1	3,7
Abandonment	0	0	2	22,2	0	0	2	7,4
Fire	0	0	1	11,1	0	0	1	3,7
Endanger/threat of relatives or one's own life	1	16,7	2	22,2	1	24,9	4	14,8
Mistrust	0	0	1	11,1	0	0	1	3,7
Chase	0	0	0	0	2	16,7	2	7,4

Although nightmares have been part of these subjects' lives for a long time, the nightmares were more or less frequent at different times. Most subjects describe stress as the main factor for an increase in the frequency of nightmares, along with a poor quality of sleep, exposure to stimuli that resemble a traumatic/stressful event and sleeping alone. Almost any kind of stress is related to the onset or increase in the frequency and severity of nightmares, even though it is a large and nonspecific concept (Blagrove et al., 2004; Hartmann, 1984) .Only a few were able to specify which factors decreased the frequency of nightmares, namely tiredness, little sleep, no contact with stimuli resembling a traumatic/stressful event and sleeping with

someone.

Concerning the influence of medication/alcohol/drugs on the frequency of nightmares, some subjects from the *Chronic* PTSD Symptoms group indicated alcohol and medication (depressants) as an enhancer and others alcohol as a decreasing factor; on the other hand, subjects from the *Mild/Moderate* PTSD Symptoms group indicated medication (depressants) and cannabis as decreasing factors (Table 6). Nightmares often occur during the withdrawal period of medications that affect neurotransmitter levels of the central nervous system, like depressant medication, barbiturates and benzodiazepine tranquilizers, as well as alcohol and psychoactive drugs, (Hartmann, 1984; Helshon, 1997; Pagel, 2000). Also, Abdel-Khalek, 2010 states that beta blockers and antidepressants increase nightmares intensity. A study from George, Charles and Adam's (2014) shows that the use of cannabis can reduce symptoms of PTSD, given that cannabinoids may facilitate the extinction of aversive memories (de Bitencourt, Pamplona, & Takahashi, 2013). This can help explain why the sleep quality results of the *Mild/Moderate* PTSD Symptoms group are better than the other two groups, given the high drug abuse from several of the subjects from this group, together with the intake of sleep medication and psychoactive medication (depressants) from the other subjects, which they consider as diminishers of the nightmares frequency, therefore improving sleep quality.

Table 6
Structured interview vs.SCID-I PTSD Module Groups

		SCID-I PTSD Module							
		Chronic PTSD Symptoms n=6		*Mild/Moderate* PTSD Symptoms n=9		No PTSD Symptoms n=12		Total N=27	
		n	%	n	%	n	%	N	%
Nightmares distress over time	Worsening	1	16,7	1	11,1	0	0	2	7,4
	Same	0	0	2	22,2	3	24,9	5	18,5
	Improving	5	83,3	6	66,7	9	75	20	74
Onset of nightmares	Childhood	3	50	5	55,6	8	66.6	16	59,2
	Adolescence	2	33,3	2	22,2	4	33.3	8	29,6
	Adulthood	1	16,7	2	22,2	0	0	3	11,1
Meds/ drugs/ alcohol that influence frequency of nightmare	Alcohol increase	2	33,3	0	0	0	0	2	7,4
	Meds (depressants) increase	2	33,3	0	0	0	0	2	7,4
	Meds (depressants) decrease	0	0	1	11,1	0	0	1	3,7
	Alcohol decrease	1	16,7	0	0	0	0	1	3,7

	Cannabis decrease	0	0	1	11,1	0	0	1	3,7
	No	1	16,7	7	77,8	12	100	20	74
Age when first traumatic/stressful event happened	Childhood	5	83,3	5	55,6	7	58,3	17	62,9
	Adolescence	1	16,7	4	44.4	5	41,7	10	37,6
Classification of childhood	Very good	3	50	1	11,1	4	33,3	8	29,6
	Good	1	16,7	3	33,3	6	50	10	37
	Partly good or bad	2	33,3	5	55,6	2	16,6	9	33,3
	Total	6	100	9	100	12	100	27	100
Classification of family condition	Very good	2	33,3	3	33,3	4	33,3	9	33,3
	Good	1	16,7	4	44,4	7	58,3	12	44,4
	Partly good or bad	3	50	1	11,1	1	8,3	5	18,5
	Bad	0	0	1	11,1	0	0	1	8,3
Classification of professional condition	Very good	1	16,7	5	55,6	1	8,3	7	25,9
	Good	3	50	3	33,3	8	66,6	14	51,9
	Partly good or bad	1	16,7	1	11,1	2	16,6	4	14,8
	Bad	1	16,7	0	0	0	0	1	3,7
	Very bad	0	0	0	0	1	8,3	1	3,7
Classification of personal condition	Very good	1	16,7	2	22,2	3	24,9	6	22,2
	Good	2	33,3	6	66,7	6	50	14	51,9
	Partly good or bad	1	16,7	1	11,1	3	24,5	5	18,5
	Bad	2	33,3	0	0	0	0	2	7,4
Nightmares during childhood	Yes	1	16,7	3	33,3	3	24,9	7	25,9
	The same/similar content	2	33,3	3	33,3	5	41,7	10	37
	No	3	50	3	33,3	4	33,3	10	37

In most cases, the onset of the nightmares was during childhood as well as the first traumatic/stressful event (most subjects described more than one traumatic/stressful event). Several subjects from the *Chronic* PTSD Symptoms group started having nightmares during childhood (M=9 years old; DP=2.646), others during adolescence (M=16.5 years old; DP=2.121) and few during adulthood (29 years old). The majority had their first traumatic/stressful event during childhood (M=6.2 years old; DP=3.114) and some during adolescence (16 years old). In the *Mild/Moderate* PTSD Symptoms group, most of subjects experienced both the onset of nightmares (M=6.6 years old; DP=3.286) and the first traumatic/stressful events during childhood (M=7.00 years old; DP=2.00) and some experienced the onset of nightmares (M=13.5 years old; DP=0.707) and their first traumatic/stressful event during adolescence (M=15.5 years old; DP=1.291. In the No PTSD Symptoms group, most subjects had the onset of nightmares (M=8.00 years old; DP=2.878) and the first traumatic/stressful events during childhood (M=8.00 years old; DP=2.516) and few had the onset of nightmares

(M=16.5 years old; DP=1.00) and the first traumatic/stressful event during adolescence (M=16.6 years old; DP=1.949) (Table 6).

When questioned about the most stressful life event, subjects mainly reported the death, injury or illness of someone close. Also, life-threatening situations were reported in all groups; domestic violence was stated in the *Chronic* PTSD Symptoms and *Mild/Moderate* PTSD Symptoms groups and bullying in the *Mild/Moderate* PTSD Symptoms group. In the No PTSD Symptoms group, robbery (oneself or someone close), diagnosis of a chronic disease and parents' divorce and/or neglect/detachment of one of the parents were also reported (Attach. 1; Table 1.4). Concerning other stressful life events, besides events with the same etiology as the ones referred above, breakup/unstable love relationships and university-related problems were reported in the Mild/Moderate PTSD Symptoms and No PTSD Symptoms groups (Attach. 1; Table 1.5).

Some subjects referred to parents' divorce and/or neglect/detachment from one of the parents, others to domestic violence (witness and/or victim), or life-threatening events, bullying and others to the death of relatives, during their childhoods. However, when asked to classify their childhood, most classified it as good. Concerning family, professional and personal relationships, the *Chronic* PTSD Symptoms group indicated partly good family relationships, good professional situations and bad personal relationships, as for the other two groups, these relationships were listed as good (Table 6). Beyond stressful periods, not being able to take "charge" of your life and/or not being involved in solid relationships is also associated with an increase in the frequency of nightmares (Blagrove, Farmer, & Williams, 2004; Hartmann, 1984).

In some cases, an evolution in the content of nightmares is observed, for example, developing from the dreamer being lost and a wolf appearing to a pack of wolves that is chasing and trying to attack the dreamer. Most subjects from the *Mild/Moderate* PTSD Symptoms and No PTSD Symptoms groups remember having nightmares during childhood, namely the same nightmare or one with similar content. For the *Chronic* PTSD Symptoms group, half of the subjects do not recall having nightmares during childhood, only few recall having the same one or one with similar content and others recall having a different nightmare (Table 6).

Nightmares have been present since childhood for most subjects, mostly the same nightmare or of similar content for the *Mild/Moderate* PTSD Symptoms and No PTSD Symptoms groups. Hartmann (1984, 2001) suggests that among other things, people with frequent nightmares can be characterized as having thin boundaries. The formation of boundaries is part of a child's life, partly through neurological maturation and partly as the result of interaction with the environment, the child learns to distinguish between him/herself and others, between dreaming and waking, reality and fantasy and so on. However, some children live surrounded by trauma and stressful situations that produce contextualizing dreams along with recurring feelings of vulnerability from childhood, and others maintain much of their childhood openness and vulnerability as they develop, remaining more sensitive, flexible, open, creative and more vulnerable as adults (Hartmann, 1984; Pagel, 2000). Hartmann's investigations (1984, 1991, 2001) observed that these people tend to have frequent nightmares occurring for many years and recall their dreams, and although a few had traumatic childhoods, most took the ordinary traumas of life extremely seriously. Their adult lives, though not seriously traumatic, constantly produced hurt and injury, and they appeared to have nightmares whenever something was very painful and reminded them of their childhood vulnerability, which was still present to some extent. The feeling of vulnerability during childhood is inevitable and we all tend to contextualize that vulnerability in dreams and thus to have nightmares. Nevertheless, it is important to take into account the individual differences in the intensity of the nightmares and the extent to which they continue into adulthood (Hartmann, 1998).

Concerning the meaning given to the nightmares, most subjects from the *Mild/Moderate* PTSD Symptoms and No PTSD Symptoms groups, unlike the *Chronic* PTSD Symptoms group, were able to give a meaning to their nightmares and to relate the triggering of the nightmare with an event, yet only half of the subjects from the No PTSD Symptoms group were able to relate it with a traumatic/stressful event, the others linked it with everyday issues. However, most subjects from the *Chronic* PTSD Symptoms and *Mild/Moderate* PTSD Symptoms groups reported the occurrence of a traumatic/stressful event before the onset of nightmares, unlike the No PTSD Symptoms group. Most subjects from all groups consider that there is no

influence of a traumatic/stressful event in the content of nightmares, though this is reasonable given that these nightmares are not an exact replay of the actual experience, as most nightmares are not, as noted in DSM 5 (American Psychiatric Association, 2013) (Table 7). Only 16.7% of subjects from the *Chronic* PTSD Symptoms group, 22.2% from the *Mild/Moderate* PTSD Symptoms groups and 33.3% from the No PTSD Symptoms group had nightmares similar to a traumatic/stressful event and 33.3% of subjects from the *Chronic* PTSD Symptoms group and No PTSD Symptoms group and 44.4% from the *Mild/Moderate* PTSD Symptoms group had a perceptible content relationship between the nightmares a traumatic/stressful event.

In other words, subjects may be aware of traumatic/stressful events in their lives, but they are not able to attribute them an emotional traumatic factor. In the traumatized subjects, the trauma-experience has in a way not happened, since it is not inscribed in the mind as part of the life narratives (Hau, et al., n.d.). It exists in warded off states of mind as an impending presence that can break into consciousness and cause anxiety (*idem*). Traumatization leaves the subject with limited symbolism of the experience and the trauma is not integrated into narrative time but it exists as a presence that threatens to intrude on the conscious mind and bring the subject back into a situation that resembles the traumatic experience (Hau, et al., n.d.). The trauma itself may occur in the dream, but dreams very rarely replay the trauma exactly as it occurred, even in the case of PTSD, the dream, though repetitive, is not normally an exact repetition of the exact trauma, but it involves one important change (Hartmann, 1998). Dreams portray not the actual details of the event, but the emotion experienced by the dreamer (*idem*). The first dreams after a traumatic event are usually predominated by terror and fear and sometimes are followed by dreams of extreme vulnerability (Hartmann, 1998; Langston, David, & Swopes, 2010; Pagel, 2000). Various other emotions, like grief and anger, sometimes come up too, either alone or mixed with the previous one usually dreamt. The traumatic event is gradually guided by the sequence of emotions, is connected up and placed in the available contexts in the dreamer's memory system (Hartmann, 1998). For example, the fear of annihilation, separation and loss may emerge and these fears are then pictured and connected in dreams. This can be observed in subjects with nightmares about natural disasters, the death of

relatives, abandonment, situations which endanger the physical integrity of the dreamer, among others, which usually have underlying traumatic/stressful events related to loss (death of relatives), life-threatening situations, parents' divorce or neglect of one of the parents, and others.

Therefore, subjects are not able to relate their traumatic/stressful events with the nightmares, but the distress caused by them resembles the distress caused by those events. Nevertheless, as the study proceeded, some changes were visible, especially in the No PTSD Symptoms and *Mild/Moderate* PTSD groups, where subjects were able to relate their nightmares little by little with stressful events and tried to give them meanings, which for most was helpful since a decrease or cease of the nightmares was observed. According to Hartmann (1984), the majority of traumatic nightmares fade fairly rapidly, and this "fading" can be accelerated by giving the opportunity to talk about it, to relive it in waking life in therapy sessions and to integrate it into his/her life. Klauber (1969, cit. in Fonagy, Kächele, Leuziger-Bohleber & Taylor, 2012) also states that dream telling has the function of relieving a person because, by sharing a dream, the feelings of conflict can be expressed that could otherwise not be communicated. This can explain the decrease in the frequency of nightmares stated by the subjects since the beginning of the study, as subjects were able to talk about their nightmares, their traumatic/stressful life events and their underlying distress. Blancher (1975) noted that just talking to the subjects about their experiences and reassuring them it is a normal phenomenon would usually result in a rapid cessation of the nightmares.

Table 7
Structured interview vs. SCID-I PTSD Module Groups

	SCID-I PTSD Module							
	Chronic PTSD Symptoms n=6		*Mild/Moderate* PTSD Symptoms n=9		No PTSD Symptoms n=12		Total N=27	
	M	SD	M	SD	M	SD	M	SD
Nightmare frequency	.67	.516	.22	.441	.08	.289	.26	.447
Did something trigger the nightmare	.33	.516	.78	.441	.67	.492	.63	.492
Is there a meaning/reason given to the nightmare	.33	.516	.89	.333	.92	.289	.78	.423
Linking the nightmare with a trauma/stressful event	.33	.516	.33	.50	.54	.519	.41	.501

Traumatic/stressful event occurring before the onset of nightmares	.83	.408	.56	.527	.42	.515	.56	.506
Traumatic/stressful events that influenced the nightmares content	.5	.548	.44	.527	.33	.492	.41	.501

Minimum Score = 0; Maximum Score = 1

The Moser Method was used as reference in the analysis of the subjects' nightmares. Its analysis of dreams is based on problem-solving aspects, which rely on affect regulation (Fischmann, et al., 2012). The analysis is done by examining the manifest dream for certain aspects: elements positioned within the dream world, observable interactions taking place between self and other or its absence and interruption of dream scenes, which indicate affective overflow, making such interruptions necessary (*idem*). Two principles of affect regulation are assumed: the security principle and the involvement principle. They are both ruled by negative and positive affects, for instance: anxiety is the motor for an enlargement of security and also for regulating involvement by breaking off interactions and generating new situations (*idem*). If the dream remains in the positioning field, it means the dreamer is hesitant in getting involved in interactions, implying that the security principle is dominant (*idem)*. On the other hand, if more elements are used, the more possibilities are available for the dreamer to regulate his affects and contents processed in a dream, enabling problem-solving strategies and therefore presenting an involvement principle (Varvin et al., 2012).

In the analysis of the nightmares, using as reference the Moser Method, the results indicated two groups, matching the IES-R previous total subjective distress scores. On one hand, we have subjects indicated as "no clinical concern" and on the other, subjects that indicated "clinical concern". This may be due to the analysis of the IES-R to recent stressful events, whose content is not limited to certain event types and whose distress would be more present in the subjects' nightmares, unlike the SCID-I which investigates specific trauma contents, narrowing the event's options. People may go through traumatic events but that does not mean they are pathologic (Bonnano, 2004). At the time of the event there is a peak of PTSD but then

most people return to normal. Isolated symptoms of PTSD may persist, but the clinical significance of these symptoms may vary from one individual to the other (Bonnano, 2004; American Psychiatric Association, 2013).

Subjects' nightmares from both groups presented no social setting, which would provide many possibilities for involvement; some dreamers remain passive, revealing a helpless self; the position field has few objects; anxiety affects are mainly observed and because there is not a way to deal with the underlying affectivity (threat), interruption is the only way. Even though some dreamers made attempts, the situation gets worse and ends in destruction. Therefore, no solution can be found for how to integrate and manage affects, repeating the same process again and again without transformation (Hau, et al., n.d.).

In the "clinical concern" group, composed by the *Chronic* PTSD Symptoms group (83.3%) and most of the *Mild/Moderate* PTSD Symptoms (77.8%) and No PTSD Symptoms (58.8%) groups, post traumatic dreams were observed, as they represent a kind of failed attempt to restore meaning in the internal world and failed attempts to regain a sense of safety (Varvin et al., 2012). The disturbances of affect-regulation become apparent, reflecting the dreamer's inability to get involved with others in the dream, due to anxiety, evoked by such involvement (*idem*). In other words, the security principle dictates these dreams. These subjects remain in the positioning field during the dream, where security aspects dominate, indicating that the dreamer is hesitant to get involved in interactions (Fishmann, et al., 2012). The capacity to get involved is consequently disrupted to avoid overwhelming emotions of life and death (Varvin, et al., 2012). The traumatizing experiences host anxieties and fears, including loss of object love, loss of the internal good object and castration anxiety (Varvin et al., 2012). The basis of this helplessness, characteristic for traumatization, may be reported by annihilation anxiety, which seems to be related with the symbolizing/desymbolizing processes (Freud, 1926). Traumatic memories usually come back as emotional and sensory states, without the capacity of representing them verbally, and this failure of processing information on a symbolic level may be due the core of PTSD, given the inability to integrate traumatic experiences with other experiences (Van der Kolk, 1996). Symbols are needed because they allow us to communicate with the outside

world and with ourselves, in order to create meaning (Varvin et al., 2012).

On the other hand, the nightmares from the "no clinical concern" group, composed of several subjects from the No PTSD Symptoms group (41.7%) and a few from the *Mild/Moderate* PTSD Symptoms (22.2%) and *Chronic* PTSD Symptoms (16.7%) groups, exhibit a higher level of integration, which is helping the dreamer towards a resolution of the underlying trauma (Fishmann et al., 2012). When there is a search for problem-solving strategies, it means the dreamer is no longer immersed in a traumatic situation in which s/he experiences extreme helplessness and lack of power (Fishmann et al., 2012). When the dreamer encounters objects willing to help him, it indicates that the inner object world of the traumatized subject is changing (*idem*). This can be explained as a conflictive complex, in which subjects revive negative affects together with the attempt of wish-fulfilment (wish-fulfilment is possible, although under restricted conditions) (Varvin et al., 2012).

The analysis of the dream narratives demonstrates an effort to deal with and control an overwhelming helplessness, by attempting to dream a new version of the trauma. However, it ended in failure or unsatisfactory solutions (Hau, et al., n.d.). There are attempts at symbolizing activity, more from the "no clinical concern" group, but these often break off, leaving the subject in a dangerous situation which they need to interrupt by waking up (Hau, Jovic, & Rosenbaum, n.d.). The traumatic complex, which explains the "clinical concern" group phenomena, contains episodes in which affective events cannot be integrated into a cognitive structure, resulting in traumatic dreams (Varvin et al., 2012).

Conclusion

It can be concluded that nightmares are essential to integrate traumatic events, which will dissolute with time, especially if one can express it both verbally and emotionally. However, when a dream is traumatic, there will be a repression of the oneiric activity which will not allow the traumatic memory to unite with passed memories, and the dream will remain unintegrated, resulting in high levels of distress, discomfort and symptomatology.

Subjects from the *Chronic* PTSD Symptoms group present a more

stressful life history, followed by the *Mild/Moderate* PTSD Symptoms group and the No PTSD Symptoms group. Namely concerning the type of household (most subjects from the *Chronic* PTSD Symptoms group belonged to monoparental or restructured families), the family medical history background, psychotherapy and psychoactive drugs medication, which was higher in the *Chronic* PTSD Symptoms group, but the majority of subjects from all groups had a stressful medical history, mainly during adolescence. Drug abuse was especially present in the *Mild/Moderate* PTSD group and sleep medication for the *Mild/Moderate* PTSD Symptoms and No PTSD Symptoms groups.

Most subjects indicated a bad sleep latency and quality of sleep (PSQI) and a loss of sleep, intense nightmares and clinically significant nightmare complaints (DDNSI). A high nightmare disturbance as well as the inability to relate the nightmares with a traumatic event was also observed (TRNS). The *Chronic* PTSD Symptoms group shows the worst results, regarding quality of sleep, frequency of nightmares, fear to go to sleep, repetitiveness of nightmares and interference of nightmares in their mental and physical health, social or recreational activities, school or work performance and relationships. The statistical analysis revealed a positive significant association between the *Chronic* PTSD Symptoms group and the interference of nightmares in mental and physical health, in social and recreational activities and in relationships, as well as with the fear of going to sleep. The absorption dissociative factor was found to be higher in the *Chronic* PTSD Symptoms group, followed by the *Mild/Moderate* PTSD Symptoms group and the No PTSD Symptoms group, as well as the repetitiveness of nightmares, the loss of sleep and interference of the nightmares with their mood (DDNSI). Given this, it can be assumed that the severity of the nightmares and of the trauma's distress is worse in the *Chronic* PTSD Symptoms group, followed by the *Mild/Moderate* PTSD Symptoms group and the No PTSD Symptoms group.

The structured interview demonstrated that all subjects had nightmares and not only bad dreams. Subjects indicated having frightening dreams involving threat to survival or security and that most nightmares caused them to awake.

Subjects presented periods of stress, especially situations that involve

helplessness and traumatic events. Most described stress as the main factor affecting the frequency of their nightmares and also, described more than one traumatic/stressful life event. The onset of most nightmares and traumatic/stressful events took place during childhood. This indicates the presence of cumulative traumas, but several cannot be characterized as traumas but as stressful events, mostly from the *Mild/Moderate* PTSD Symptoms and No PTSD Symptoms, e.g. university related problems, breaking up a relationship. Many events may not be characterized as traumatic according to the nosological definition, but how the subject experiences the event is what matters. Thus, in the structured interview these events where referred as stressful and not traumatic. These cumulative stressful events, as well as the presence of nightmares since childhood which retain the same or similar content, suggest the presence of thin boundaries, given the presence of childhood vulnerabilities observed in the nightmares content and, to some extent, in the several stressful events which are taken extremely seriously. On the other hand, most subjects from the *Chronic* PTSD Symptoms group described fewer events, but traumatic or with more traumatic characteristics. Also, few subjects remember having nightmares during childhood, before the onset of the recurrent nightmare. It is important to highlight that most subjects had the onset of nightmares around the same age as the first stressful event happened.

An evolution in the subjects' ability to partially integrate information was notable. Firstly, subjects did not relate either the nightmares onset or the nightmares content with a traumatic/stressful event. However, as the study proceededsubjects were able to slowly relate their nightmares with stressful events and to give them a meaning, especially subjects from the No PTSD Symptoms and *Mild/Moderate* PTSD Symptoms groups, resulting in a decrease or ceasing of the nightmares for most subjects. This was less visible in the *Chronic* PTSD Symptoms group; nevertheless, an overall decrease in the frequency of nightmares and an improvement in the distress caused by the nightmares were indicated. However, most subjects from all groups consider that there is no influence of a traumatic/stressful event in the nightmare's content, given that the nightmare is not an exact replay of the event. This indicates that there is an awareness of the traumatic/stressful component in those events; however, subjects were still not able to fully

integrate this memory into their life's narratives, especially the *Chronic* PTSD Symptoms group.

In the analysis of dreams, using the Moser Method as reference, the majority of dreams from subjects of all groups presented the security principle as dominant. There is no social setting; the position field has few objects; anxiety affects are mainly observed as well as the interruption of the nightmare. In this situation, the dreamer has no perspective of a possible solution and can only observe his own disintegration. Nevertheless, the subjects from the "no clinical group" revealed higher levels of symbolic and relational quality, even though we can observe the latent, trauma-related material and even though it is not a "successful" dream in terms of integration and of affect regulation, there is more freedom to solve problems and more involvement, together with more object placement.

The strengths of this study focus on the protocols, which were specific, personal and did not entirely rely on self-evaluation procedures, allowing the collection of a large, personal and diverse quantity of data. Not only were the subjects heard, they were also observed and, given the face-to-face contact, it was possible to create a bond between subject and researcher, making it easier for them to trust their deepest and most stressful life events. To mitigate the limitations of diagnoses, which either focus on extreme (psychopathology) or exacerbated sampling bias (Bonanno, 2014), subjects were divided into groups according to the severity of symptoms and not PTSD diagnosis, also given the dimensional nature of this study. Also, one of the criteria needed for subjects to join the sample was having nightmares and not necessarily traumatic experiences. Besides, in the structured interview, questions were always asked with reference to stressful and not traumatic life events, because it was observed at the beginning of the study that subjects felt biased whenever a scale asked about traumatic experiences. It should also be noted that, even though differences were found between groups, each person is a unique individual and in further research, they should be analyzed individually and more thoroughly.

There were some limitations to this study, namely the number of subjects and consequently the use of scales that are not duly valid for the Portuguese population. Nevertheless, these scales were translated following accepted standards and were used for information gathering and not for

statistical purposes, given the small number of subjects, which did not allow the validation of the scales. For future studies, a bigger sample and the validation of the Disturbing Dream and Nightmare Severity Index and the Trauma Related Nightmare Survey would be essential. When analyzing the nightmares' content, the Moser Method was used as reference, since it fulfilled the requirements of this study. However, for further research, the use of the complete Moser Method is recommended for a more detailed and complete research.

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Appendix

Attachment 1, Table 1.1
Pittsburgh Sleep Quality Index vs.SCID-I PTSD Module Groups

	SCID-I PTSD Module							
	Chronic PTSD Symptoms n=6		*Mild/Moderate* PTSD Symptoms n=9		No PTSD Symptoms n=12		Total N=27	
	M	SD	M	SD	M	SD	M	SD
Duration of Sleep*	1.17	1.329	0.22	0.667	0.58	0.793	0.59	0.931
Sleep Disturbance*	1.67	0.516	1.44	0.726	1.50	0.522	1.52	0.580
Sleep Latency*	1.17	1.169	1.33	0.707	1.50	1.168	1.37	1.149
Day dysfunction due to sleepiness*	1.67	0.516	1.33	0.707	1.42	0.793	1.44	0.698
Sleep Efficiency*	0.83	0.983	0.44	1.014	0.92	0.996	0.74	0.984
Overall Sleep Quality*	2.00	0.632	1.22	0.667	1.92	0.900	1.70	0.823
Need Meds to Sleep*	0.50	0.837	0.44	0.882	1.16	0.67	0.56	0.974
PSQI Total (>5 poor sleep quality)	9.00	2.608	6.44	4.773	8.50	4.421	7.39	4.215

Minimum Score = 0 (better); Maximum Score = 3 (worse)

Attachment 1, Table 1.2.
Disturbing Dream and Nightmare Severity Index vs.SCID-I PTSD Module Groups

		SCID-I PTSD Module							
		Chronic PTSD Symptoms n=6		*Mild/Moderate* PTSD Symptoms n=9		No PTSD Symptoms n=12		Total N=27	
		n	%	n	%	n	%	N	%
How often do you have disturbing dreams and/or nightmares	Monthly	1	16,7	5	55,6	8	66,7	14	51,9
	Weekly	5	83,3	4	44,4	4	33,3	13	48,1
		M	DP	M	DP	M	DP	M	DP
Do your nightmares wake you up?		2.17	0.983	2.33	0.701	1.917	0.996	2.11	0.892
Severity of disturbing dreams and/or nightmares		3.67	0.817	2.44	1.130	2.75	1.138	2.85	1.124
Intensity of disturbing dreams and/or nightmares		3.50	0.837	3.22	0.971	3.58	1.240	3.44	1.050
My disturbing dreams and/or nightmares cause me to lose sleep		1.17	0.753	1.33	1.00	1.00	0.853	1.15	0.864
My disturbing dreams and/or nightmares make it difficult to fall asleep		1.00	0.632	1.11	1.054	0.75	0.754	0.93	0.827

My disturbing dreams and/or nightmares interfere with the quality of my sleep	1.83	0.753	1.44	0.726	1.50	0.798	1.56	0.751
My disturbing dreams and/or nightmares make it difficult to sleep through the night	1.33	0.516	0.78	0.972	0.92	0.669	0.96	0.759
My disturbing dreams and/or nightmares interfere with my mood	1.17	0.753	1.11	1.054	0.83	0.937	1.00	0.919
My disturbing dreams and/or nightmares interfere with my mental health	1.50	1.225	0.44	0.527	0.42	0.900	0.67	0.961
My disturbing dreams and/or nightmares interfere with my physical health	0.67	0.516	0.22	0.667	0.33	0.888	0.37	0.742
My disturbing dreams and/or nightmares interfere with social or recreational activities	0.67	0.516	0.56	0.726	0.25	0.866	0.44	0.751
My disturbing dreams and/or nightmares interfere with my school or work performance	0.50	0.548	0.22	0.441	0.33	0.888	0.33	0.679
My disturbing dreams and/or nightmares interfere with my relationships	0.67	0.516	0.44	0.726	0.25	0.866	0.41	0.747
Total Score (>10 clinically significant nightmare complaint) 0=minimum score; 37=maximum score	23.33	6.713	18.0	9.014	16.83	8.871	18.67	8.584

Minimum Score = 0 (better); Maximum Score = 4 (worse)

Attachment 1, Table 1.3.
Trauma Related Nightmare Survey vs. SCID-I PTSD Module Groups

		SCID-I PTSD Module							
		Chronic PTSD Symptoms n=6		*Mild/Moderate* PTSD Symptoms n=9		No PTSD Symptoms n=12		Total N=27	
		n	%	n	%	n	%	N	%
Time you generally wake up from a nightmare	0-2 hours after sleep	2	33,3	1	11,1	2	16,7	5	18,5
	3-5 hours after sleep	4	66,7	8	88,9	10	83,3	22	81,5

	M	DP	M	DP	M	DP	M	DP
How fearful are you to go to sleep?	0.83	1.169	0.44	1.014	0.00	0.00	0.33	0.832
How depressed do you feel when you wake up?	1.00	1.095	0.67	0.866	1.00	1.044	0.89	0.974
How rested do you feel when you wake up?	1.83	0.753	2.00	0.866	1.50	1.243	0.26	0.447
Did your nightmares begin after a traumatic event, such as sexual assault, combat, fire or any other stressful event?	0.17	0.408	0.33	0.500	0.25	0.452	2.15	0.949
How disturbing have the nightmares been?	2.00	0.894	2.00	0.866	2.33	1.073	0.41	0.637
Relationship nightmare-trauma	0.33	0.516	0.22	0.441	0.58	0.793	0.93	1.239
How long does it typically take you to return to sleep after a nightmare?	1.17	1.602	1.33	1.500	0.50	0.674	0.81	0.396
Nightmares related to powerlessness	0.33	0.516	1.78	1.481	1.83	1.337	1.48	1.369
Nightmares related to trust	1.33	1.211	1.00	1.118	1.00	1.044	1.07	1.072
Nightmares related to intimacy	1.17	1.169	0.89	1.269	1.00	1.044	1.00	1.109
Nightmares related to safety	3.17	0.408	3.00	0.866	2.08	1.311	2.63	1.115
Nightmares related to esteem	1.17	0.983	1.11	1.364	0.83	1.193	1.00	1.177
Same nightmare over and over	2.67	1.506	2.00	1.225	2.33	1.231	2.29	1.265

Minimum Score = 0 (better); Maximum Score = 4 (worse)

Attachment 1, Table 1.4
Traumatic/Stressful Event (most significant) vs. SCID-I PTSD Module Groups

	SCID-I PTSD Module							
	Chronic PTSD Symptoms n=6		*Mild/Moderate* PTSD Symptoms n=9		No PTSD Symptoms n=12		Total N=27	
	n	%	n	%	n	%	N	%
Life threatening situations	2	33,3	2	22,2	1	8,3	5	18,5
Bullying	0	0	1	11,1	0	0	1	3,7

Domestic Violence (witness and/or victim)	1	16,7	2	22,2	0	0	3	11,1
Death, injury or illness of someone close	3	50	4	44,4	5	41,6	12	44,4
Robbery (oneself or someone close)	0	0	0	0	3	24,9	3	11,1
Chronic disease diagnosis	0	0	0	0	1	16,7	1	3,7
Parents divorce (detachment/neglect of one of the parents)	0	0	0	0	2	16,7	2	7,4

Attachment 1, Table 1.5
Traumatic/Stressful Events Topics (others) vs. SCID-I PTSD Module Groups

	SCID-I PTSD Module							
	Chronic PTSD Symptoms n=6		*Mild/Moderate* PTSD Symptoms n=9		No PTSD Symtoms n=12		Total N=27	
	n	%	n	%	n	%	N	%
Subjects with more than one trauma	6	100	8	88,9	11	91,7	25	92,6
Life threatening situations	0	0	1	11,1	1	8,3	2	7,4
Domestic Violence (witness and/or victim)	1*	16,7	2	22,2	0	0	3	11,1
Death, injury or illness of someone close	5	83,3	4*	44,4	7	58,3	16	59,2
Chronic disease diagnosis	0	0	0	0	1*	8,3	1	3,7
Parents divorce (detachment/neglect of one of the parents)	2*	33,3	1*	11,1	2*	16,6	5	18,5
Breakup/unstable in love relationships	0	0	2**	22,2	2**	16,6	4	14,8
University related problems	0	0	2	22,2	2*	16,6	4	14,8
Bullying	0	0	0	0	1	8,3	1	3,7

** Subject with various stressful event topics*